

**IN THE ABSTRACT**

Please replace the present abstract with the following:

**ABSTRACT OF THE DISCLOSURE**

Systems and methods are described for carbon containing tips with cylindrically symmetrical carbon containing expanded bases. A method includes producing an expanded based carbon containing tip including: fabricating a carbon containing expanded base on a substrate; and then fabricating a carbon containing fiber on the expanded base. An apparatus includes a carbon containing expanded base coupled to a substrate; and a carbon containing fiber extension coupled to said carbon containing expanded base. The carbon containing expanded base is substantially cylindrically symmetrical and said carbon containing extension is substantially cylindrically symmetrical